

Propositions for Database Project

Each Group choose one of these Problems .

Problem 1 : Department-Employee

- A department employs many employees. Each employee is employed by one department.
- There are 2 types of employees : “rovers” that are not assigned to any department or “fixed”
- A division operates many departments. Each department is operated by one division.
- An employee may be assigned many projects. A project may have many employees assigned to it.
- A project must have at least one employee assigned to it.
- One of the employees manages each department. Each department is managed by only one employee.
- One of the employees runs each division. Each division is run by only one employee.
- A department is defined by : Dep_Num, Dep_Name.
- An employee is defined by : Emp_Id, Emp_Name, Emp_Mobile, Emp_Grade, Emp_Adress.
- A division is defined by : Div_Code, Div_Name, Number_Department.
- A project is defined by : Proj_Code, Proj_Name, Number_Employees.

Problem 2 : Sales Company

- A sales rep can write many invoices. Each invoice is written by a single sales rep.
- A customer can generate many invoices. (Each time a customer makes a purchase of one or more items, and invoice is generated.)
 - There are 2 types of customer : “Golden_Customer” or “Silver_Customer”
- Each invoice is generated by a single customer.
- Each invoice includes one or more invoice lines. (Each item purchased is recorded in an invoice line.)
- Each invoice line is associated with one (and only one) invoice.
- Each invoice line records a single product.
- Each product can be recorded in many invoice lines.
- A sales rep is defined by :Rep_Id, Rep_Name, Rep_Mobile, Rep_Adress.

- An invoice is defined by :Invo_Num, Invo_Name, Invo_Date, Number_Lines, Invo_Total.
- A customer is defined by :Cust_Id, Cust_Name, Cust_Mobile, Cust_Adress.
- A product is defined by :Prod_Code, Prod_Name, Prod_Price, Prod_Qantity, Prod_Country, Prod_Description.

Problem 3: FlyRight Aircraft Maintenance (FRAM)

- There are 2 types of employees : “mechanics” or “Not mechanics “
- Some mechanics are specialized in engine (EN) maintenance. Some mechanics are specialized in airframe (AF) maintenance. Some mechanics are specialized in avionics (AV) maintenance.
- All mechanics take one or many FRC courses to stay current in their areas of expertise.
- A FRC course can be taken by one or many Not mechanics.
- The manager controls all courses taken by each mechanics.
- A mechanic can present zero or many FRC courses.
- Each mechanic must be controlled by only one manager.
- An employee is defined by : Emp_Id, Emp_Name, Emp_Mobile, Emp_Grade, Emp_Salary.
- A mechanics is defined by : Type_Specialisation.
- A Not mechanics is defined by : Rule_Description.
- A FRC course is defined by : Course_Code, Course_Name, Course_Date, Number_Presents.
- A manager is defined by : Manag_Id, Manag_Name, Manag_Mobile, Manag_Email.

Problem 4 : Student Transcription

- A STUDENT may enroll in zero or many COURSEs. A COURSE may be attended by zero or many STUDENTs. The date that a specific STUDENT enrolls in a specific COURSE is recorded in the registration_date attribute of this relationship.
- A STUDENT either has been issued a single TRANSCRIPT or has not. A TRANSCRIPT is assigned to a single STUDENT.
- A TRANSCRIPT may record grades for many COURSEs. A COURSE may appear on zero or many TRANSCRIPTs.
- A COURSE may specify one or many prerequisite COURSEs. A COURSE may be a prerequisite for zero or many COURSEs.
- A DISTANCE_STUDENT is a subtype of STUDENT.
- STUDENT is described with the attributes: student_number, name, and address.
- DISTANCE_STUDENT is described with the attributes: community and local_tutor. This entity does not have an identifier.
- COURSE is defined by: course_number and title.
- TRANSCRIPT is also an entity with the attribute: grade. This entity does not have an identifier.

Problem 5 : Private Hospital

A doctor can be scheduled for zero or many appointments. Each appointment is scheduled with exactly 1 doctor.

A patient can schedule 1 or more appointments. One appointment is scheduled with exactly 1 patient.

There are 2 types of patients: Resident Patient or Resident Patient that is defined with the identifier Bed_Id.

An appointment must generate exactly 1 bill. A bill is generated by only 1 appointment.

One payment is applied to exactly 1 bill, and 1 bill can be paid off over time by several payments.

One patient can make many payments. A single payment is made by only 1 patient.

Some patients are insured by only one insurance company. An insurance company can have many patients carry their policies.

A patient is defined with the attributes : Patient_Num, Patient_Name, Patient_Nationality, Patient_Mobile, Patient_Adress.

A doctor is defined with the attributes : Doctor_Id, Doctor_Name, Doctor_Nationality, Doctor_Mobile.

Appointment is defined with the attributes : Appoint_Num, Appoint_Date.

A bill is defined with the attributes : Bill_Num, Bill_Date.

A payment is defined with the attributes : Pay_Num, Pay_Date, Pay_Total.

insurance company is defined with the attributes : Insur_Num, Insur_Name, Insur_Phone.

Problem 6 : Product Market

A Client may generate many facture. Each facture is generated by only one Client.

A Market sells many products. Many products are sold by one Market.

A client pay by only one credit card. Each credit card payment is generated by one client.

Each facture has many products. One or more products are printed on each facture.

Zero to many products are tracked in inventory by date last used. An Inventory has zero to many products.

Products have one or more manufactures. Manufactures must have one or many product.

A Client is defined with the attributes : Client_Id, Client_Name, Client_Mobile, Client_Adress.

A facture is defined with the attributes : Fact_Code, Fact_Name, Fact_Date.

A Market is defined with the attributes : Market_Id, Market_Name, Market_Fax, Market_Adress.

credit card is defined with the attributes : Card_Id, Delivry_Date .

A product is defined by :Prod_Code, Prod_Name, Prod_Price, Prod_Qantity, Prod_Country.

An Inventory is defined by :Invent_Code, Invent_Name, Invent_Total.

Manufacture is defined by : Manufacture_Code, Manufacture_Name, Manufacture_Country, Manufacture_Budget .